GETTING STARTED:
SELECTING THE RIGHT DELIVERY METHOD FOR YOUR PROJECT

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Presented at the 2018 Fall Meeting

It’s Lonely at the Top: Building a Successful Team with the Owner

October 4-5, 2018
Le Centre Sheraton Montreal Hotel, Montreal, Quebec, Canada

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I. What is a Project Delivery System?

The project delivery system for a construction project can best be described as how the owner (and it is usually the owner) organizes the processes through which a project is designed, procured and built.\(^1\) A project delivery system entails defining the roles of participants on a construction project, the legal relationships among them, the timing and sequence of activities, the sharing of risks and rewards, and the management practices and techniques used to plan, design and construct the project.\(^2\)

The selection of the project delivery system is a principal factor in determining the success (or failure) of a construction project. The project delivery system dictates the overall legal and commercial framework of the construction transaction, including the allocation of risk and obligations among the project participants, and the sequence of design, procurement and construction activities. The contractual relationships among project participants, and form of contract used, are a direct consequence of the delivery system applicable to the project. It generally is accepted that the project delivery system affects project cost, quality of design and construction, long-term maintenance, and time of completion. **In short, the project delivery system significantly influences project success.** (emphasis added).\(^3\)

This paper will briefly review the evolution of project delivery systems for construction projects, discuss how a project delivery system is selected (or perhaps should be selected), review the major project delivery systems in use today and the advantages and disadvantages of each, how successful the major project delivery systems are and how to make better choices on the most suitable project delivery system.

II. History and Evolution of Project Delivery Systems

Before the industrial revolution, methods of building construction and the related technology were rather simple and straightforward. As such, a master mason or carpenter, sometimes described as a master builder, was commonly appointed to supervise and deliver the entire project.
The pyramids of Egypt and the great buildings of the Renaissance were delivered by such a methodology. As the industrial revolution unfolded, technological advances and increased project complexity spawned a need for design and construction specialization. Architecture became a separate profession, and the design function was separated from the performance of construction. This separation of design and construction evolved into the “traditional” project delivery system.

For most of the last century, design-bid-build remained the most popular method of delivering a project in the United States. The public sector, in particular, embraced this approach for much if not all of public construction. Procurement laws – which may have been the cause or the effect of the predominance of design-bid-build – mandated this system in many cases.

In the private sector, however, owners were free to consider and implement more varied and nuanced project delivery systems. Use of a construction manager advisor to serve as the owner’s eyes and ears to oversee a general contractor and/or multiple prime contractors grew in popularity. Even more so, the use of a construction manager at-risk became very prevalent especially in the commercial building sector. The reasons for the expanded use of construction management at-risk are varied. Design professionals declined to serve a more active role in construction means and methods for liability and other reasons. The owner’s desire to lock in financing for projects before completion of design required an earlier price commitment and thus earlier involvement by the constructor. These factors created opportunities for the rise of construction management at-risk project delivery.

Design-build re-emerged in the latter part of the twentieth century as a valuable and desired model for project delivery. Building systems were more complicated and interconnected. The more the design and construction of complicated structures was fragmented and allocated to...
different participants the higher the risk of bad outcomes. Thus, owners began to reconsider consolidating the responsibility for design and construction into a single entity. In some cases, this consolidation was more easily accomplished with structures where function (think of a warehouse) was more important than aesthetics (think of an art museum). Nonetheless, the growth in design-build project delivery was substantial. According to one survey published in the mid-1990’s, the total number of design-build contracts was increasing at that time by more than 100% a year.⁶

More recently, the emergence of integrated project delivery (“IPD”) has shown how the construction industry is rethinking project delivery systems to address growing complexity, advancing technology and continued dissatisfaction with other project delivery systems. IPD is addressed in a companion paper from Howard Ashcraft for this Forum program.

III. How Are Project Delivery Systems Selected?

No one project delivery system is a panacea and one size does not fit all. All of the project delivery systems described in this paper will continue to be used in the construction industry depending on the goals and resources – human, technological and financial – for a given project. An owner building out a “vanilla box” for a cell phone retail outlet will have different goals and resources than a petrochemical company constructing a refinery. The key to the selection of a project delivery system is alignment.

[N]o project delivery system by virtue of its structure alone is a guarantee of good results. The attributes of a delivery system must be properly aligned with the principal project objectives, and the project participants must implement the chosen system correctly and execute their responsibilities well, in order for the project to succeed.⁷

The level of analysis undertaken to select a project delivery system can range from “none” to multi-factored and multi-layered. At one end of the spectrum, a commentator has observed “[g]iven the importance of making an appropriate project delivery selection, it is surprising that,
in many cases, little or no objective analysis is involved in the selection process; the project delivery approach may simply be the method used on the owner's last project or the system with which the architect/engineer (typically the first construction professional retained by the owner) has the greatest familiarity.”

On the other end of the spectrum, other owners consider various objectives, resources, and limitations to select a project delivery system for a construction project. The Project Management Institute (“PMI”) is one organization that has published a number of papers describing the decision-making process that should go into selecting a project delivery system. One PMI resource recommends that the selection of a project delivery system should entail filling the following roles:

**Owner Decision-Maker**—The entity or person with the authority to make project decisions on behalf of the owner.

**Project Management**—The guidance of project and project related activities from beginning to end through the application of knowledge, skills, tools, and processes in order to meet or exceed stakeholder needs and expectations from the project.

**Design**—The solution to the owner’s project needs in the form of contract documents from which cost estimates can be obtained and the project constructed.

**Contracting**—The arranging for or holding of the contracts with performing (trade) contractors.

**Construction**—The hands-on work of the performing (trade) contractors who actually build the project with their own workforces.

**Construction Coordination**—Directing of the performing (trade) contractors during construction.

**Construction Contract Administration**—The servicing of contracts for construction held by contractors. \(^9\)

In addition to the roles that need to be played on each project, there are a number of factors/goals/objectives/limitations to be considered when selecting a project delivery system. These will vary from project to project. These factors may include:
Project Considerations

- **Scope**—How well defined is the project scope?
- **Schedule**—Can the project be delivered in a linear sequence or is a fast-track approach needed?
- **Cost**—What are the costs limits for the project?
- **Uniqueness**—Is design a driver for this project? Are construction processes a driver?

Owner Considerations

- **Ability**—What is the owner’s ability to participate in the project delivery process? What role or roles is the owner capable of filling?
- **Experience**—What experiences has the owner had with projects? What has worked for the owner in the past?
- **Desire for Involvement**—How much direct involvement does the owner want in the project delivery process?
- **Desire for Control**—How much control does the owner want in the project delivery process?
- **Comfort Zone**—Owner’s should not overlook their “gut” feelings. What feels comfortable to the owner?

Team Selection Considerations

- **Laws**—Do state or federal laws dictate methods of team member selection and procurement?
- **Availability and Experience**—What is the availability and experience of the design and construction community for the specific project at hand?
- **Relationships**—Does the owner have relationships with particular designers and/or contractors?
- **Team Building**—What team members will provide the best opportunity to build a winning team?

Whether an owner undertakes a back of the napkin evaluation or a detailed analytical approach to selecting a project delivery system, the goal of that selection should be the same - to choose a project delivery system that best matches the objectives for the project with
characteristics that enable all project participants to identify, evaluate and overcome the inevitable hurdles that will interfere with project success.\textsuperscript{11}

IV. **Overview of the Major Project Delivery Systems\textsuperscript{12}**

a. **Design-Bid-Build**

Often referred to as the “traditional” form of project delivery, design-bid-build is still the most widely-used form of project delivery system industry-wide. Different sectors (such as petrochemical and other industrial facilities) may rely more heavily on other delivery systems but, as a whole, design-bid-build reigns. Under this form of project delivery, after the design professional (typically but not always an architect) completes the design, the owner obtains competitive bids in the market based on that design seeking the lowest price, and then executes a contract with a general contractor to build the project. The general contractor then contracts with subcontractors, suppliers, and others to perform the actual construction work.\textsuperscript{13} More and more general contractors are “paper” contractors that do not self-perform any trade work (concrete being a notable exception with certain general contractors). Figure 1 below illustrates the relationships under a design-bid-build project delivery system.

![Figure 1](image-url)
Under a design-bid-build delivery system, the design professional completes the design without the benefit of input from a constructor. Issues of constructability of the plans and specifications are dealt with by contractors through estimating – either through bid assumptions and/or contingencies – which are usually not transparent to an owner especially if the price basis for the construction contract is a lump sum.

During the bidding process, the design professional assists the owner in obtaining competitive bids or proposals and in reviewing the proposals or bids. When construction gets underway, the design professional performs construction administration services. These services can include site observation, review and certification of pay applications, review and approval of shop drawings and submittals, responding to requests for information, processing change orders, determining project completion and administering project closeout.\(^\text{14}\)

As with any project delivery system, design-bid-build has both advantages and disadvantages. One perceived advantage is certainty of scope and price. Because the design is completed (if there is such a thing), the price from the contractor should be complete and correlated with the complete design documents so that the owner knows what it is buying and how much it is paying. This is not to say that change orders will not arise but rather the expectation under this project delivery system is that the changes (absent owner-directed scope changes) will be minimal.

Another advantage is that the owner can defer incurring construction-related costs until the design is completed. Depending on the owner, this may be important based on the timeline for securing financing, public or private, for the construction. Furthermore, with a completed design, an owner should have a higher degree of confidence in the scope of the work for which financing is needed.
If bidding is done on a competitive basis, the owner should reap the benefit of that competition through a lower price. This advantage may not be entirely realized in public procurement, however, where a public owner is legally mandated to accept the lowest bidder but may encounter later a flurry of change orders from the supposed low-bidder that causes the overall construction cost to exceed the next-lowest bidder.\textsuperscript{15}

Finally, because design-bid-build is the most widely-used delivery system there is a familiarity and comfort level with it among all participants in the construction industry. Roles are familiar and processes are usually well-understood. Those processes are often simpler as well. For example, lump sum pricing is often used on design-bid-build projects. The processing of contractor payments is often done based on a percent complete basis which consumes less time than combing through actual cost data when a cost-reimbursement arrangement is used.

All is not rosy, however, under the design-bid-build project delivery model. As the design profession has evolved, many design professionals are (or are perceived to be) “increasingly segregated and isolated from real-world construction experience, including the constructability of their designs, and the effect of slight differences in design requirements upon ease of construction, the cost of materials and components, and the overall cost of construction.”\textsuperscript{16} As such, the design documents that are used for bidding may be replete with constructability challenges that will result in either higher construction pricing during the bidding and/or change orders during construction. The owner will bear the brunt of these price impacts under either scenario. With respect to change orders or claims, if not resolved under the changes clause in the construction contract, the contractor might invoke the Spearin doctrine against the owner claiming that the plans and specifications were not adequate and any associated increased costs to complete the intended construction is the owner’s responsibility.\textsuperscript{17}
The design-bid-build process is also time-consuming. Awaiting completion of design before bidding and start of construction lengthens the overall timeline for a project. If time is money, then design-bid-build may end up costing more money. While that is not always true, the lockstep, linear sequence of design-bid-build does not lend itself to schedule efficiency.

Furthermore, with respect to public owners in particular, the use of design-bid-build may force a public owner into the arms of a contractor who presents many challenges down the road. The perception that “claims contractors” will get the contract may also constrain competition from other more fair-minded and qualified contractors whose bid would likely be higher. As one commentator has observed:

[p]ublic entities may be concerned that a bidder with minimal experience may be the low bidder, but that its inexperience may cause difficulty during performance. A responsibility determination and/or pre-qualification may eliminate some less experienced contractors, but not all, particularly if the public entity cannot judge “relative responsibility.” Other public entities perceive that contractors will offer an excessively low price in order to secure the contract, intending to make up their “loss” in bidding by submitting multiple change orders. . . Bidders that honestly and accurately assess the true project costs may be discouraged from bidding if they perceive that they cannot submit the lowest bid and win the contract without such change order gamesmanship, thus reducing the competitive benefits from using the design-bid-build methodology.18

Finally, because of the separation of design and construction functions and the sequential nature of this project delivery system, design-bid-build projects can often devolve into adversarial, rather than collaborative, undertakings.19 Contractors will point to the design professional’s work as the source of claims; design professionals will assert that a contractor’s selection of means and methods are the source of problems – and the owner is stuck in the middle. While this is certainly not the case on every design-bid-build project and most design professionals and contractors look to solve problems, the structure of this project delivery system and the legal documents that memorialize that structure can create an atmosphere susceptible to conflict.
b. Design-Build

Under the design-build project delivery system, the owner contracts with a single entity that is responsible for both designing and constructing the project. There are a number of variables with this project delivery system such as (a) how and to what extent the owner’s project criteria are defined to drive the design; (b) how the design-build entity is formed; and (c) how the various design and construction responsibilities are allocated by the design-builder (in-house v. outsourced).

On the first variable, some owners may only provide a simple project description or an expanded program to define space and functionality requirements. For projects that are more process-oriented such as a chemical plant or pharmaceutical facility, the owner may develop a “basis of design” document that includes both spatial and process criteria. Another variation entails the owner providing bridging documents for the design-builder to use to complete the design. More specifically, the owner first retains a "criteria" or "bridging" consultant who confirms the owner’s program and prepares conceptual design documents perhaps up to the design development phase. The design-builder then offers a fixed price or GMP based on the conceptual documents and then prepares working drawings with its own architect which drawings are then used to build the project.20

Figure 2 below illustrates the relationships under a design-build project delivery system (where the contractor is the design-build entity).
One of the advantages of design-build is the single point of responsibility for design and construction. Unlike design-bid-build, the owner will not typically find itself caught in the middle of a finger pointing contest between the contractor and design professional. The design-build entity is responsible for both functions so there is little incentive to bicker over design and construction issues – at least to the owner.

Because design and construction are consolidated, design-build is often a faster approach to project delivery. The collaborative relationship between the contractor and design professional often leads to quicker identification of issues and faster resolution of problems. As a result, the design-build project delivery approach may allow an owner to receive a completed project in a shorter time frame.
Other potential advantages of the design-build project delivery approach include:

- **Cost Savings** – an integrated and collaborative team will work toward efficiency.
- **Better Quality** – design-builders often develop innovations to deliver a better project that initially imagined.
- **Decreased Administrative Burden** – owners can focus on the project rather than managing disparate contracts.
- **Reduced Risk to the Owner** – Because the design and construction function are held by one entity the risk of design-related claims (such as a Spearin claim) are greatly mitigated if not eliminated.\(^{21}\)

On the down side, one of the major concerns expressed about the design-build delivery system is the lack of owner control over the design. The concern being that by providing only preliminary design criteria before passing on the cost and schedule risk to the design-build entity the owner cedes the final decision making on design in a more substantial way than under design-bid-build projects. The design professional will be more aligned with the constructor rather than the owner and scope and quality of design may be compromised to achieve schedule and cost efficiencies to achieve greater profit for the design-build entity. The extent to which this potential misalignment of interests occurs will be affected by the specificity of owner-provided design criteria; bridging documents will better capture the owner’s design intent but may ultimately erode some of the benefits of the design-build delivery model.

**c. Design-Build-Operate-Transfer**

There have been several variations of the design-build project delivery model in recent years especially in the context of public infrastructure projects such as roads and bridges. One of those variations is the design-build-operate-transfer (“DBOT”). Under this approach, the owner
(usually a public body) enters into either or both a concession agreement and design-build agreement. The design-build agreement covers the customary design and construction responsibilities that would be expected. The concession agreement, however, covers the responsibilities of the concessionaire for post-construction operations, maintenance, performance standards and eventual transfer of the asset to the public body after the expiration of the concession period which can range between 25 and 50 years or longer. Usually, the public owner has a limited commitment to fund design and construction; the larger share of that burden falls on the design-builder or concessionaire. The design-builder/concessionaire recoups its investment with some return on that investment (hopefully) based on payments made during the term of concession such as tolls or availability payments).

This form of project delivery is often seen in the context of a public-private partnership or P3 project. For the public body, the attraction of this form of project delivery is that it allows the use of private funds to finance much-needed public works that might otherwise be infeasible under traditional public construction procurement due to bond underwriting limitations, constrained public revenue streams or other concerns. Figure 3 below illustrates one example of how a DBOT project might be structured.
d. Construction Manager At Risk

Under this approach, the owner hires a constructor during the design process – well before working drawings are completed—to provide input on certain facets of the design such as constructability. At the same time, the owner commits to using the constructor to build the project long before a price is established for the construction. That commitment usually culminates in the execution of an agreement or an amendment to the agreement establishing the price and schedule binding the construction manager – the risk in construction management at risk.

The Standard Form of Agreement between the Owner and Construction Manager as Constructor (AIA Document A134™ – 2009) describes the areas that the construction manager is to address with the owner and architect during the design phase:
§ 2.1.2 Consultation
The Construction Manager shall schedule and conduct meetings with the Architect and Owner to discuss such matters as procedures, progress, coordination, and scheduling of the Work. The Construction Manager shall advise the Owner and the Architect on proposed site use and improvements, selection of materials, and building systems and equipment. The Construction Manager shall also provide recommendations consistent with the Project requirements to the Owner and Architect on constructability; availability of materials and labor; time requirements for procurement, installation and construction; and factors related to construction cost including, but not limited to, costs of alternative designs or materials, preliminary budgets, life-cycle data, and possible cost reductions.

* * *

§ 2.1.4 Phased Construction
The Construction Manager shall provide recommendations with regard to accelerated or fast-track scheduling, procurement, or phased construction. The Construction Manager shall take into consideration cost reductions, cost information, constructability, provisions for temporary facilities and procurement and construction scheduling issues.

§ 2.1.5 Preliminary Cost Estimates
§ 2.1.5.1 Based on the preliminary design and other design criteria prepared by the Architect, the Construction Manager shall prepare preliminary estimates of the Cost of the Work or the cost of program requirements using area, volume or similar conceptual estimating techniques for the Architect’s review and Owner’s approval. If the Architect or Construction Manager suggests alternative materials and systems, the Construction Manager shall provide cost evaluations of those alternative materials and systems.

* * *

§ 2.1.6 Subcontractors and Suppliers
The Construction Manager shall develop bidders’ interest in the Project.

Figure 4 below illustrates the relationships under a construction management at-risk delivery system.
The chief advantage of the construction management at-risk model is that the project benefits from early input and analysis from the constructor before the design drawings are completed. This early input should help identify and eliminate (or at least minimize) foreseeable constructability challenges, facilitate a discussion about alternative materials and equipment that could yield savings and schedule efficiencies and allow the contractor to get an early look at site logistics to improve planning.

Another advantage to this approach is that construction can commence sooner through early award of bid packages. The contractor is at the table and may be able to develop a procurement strategy to buy out certain portions of the project early to allow a fast-track approach.
to construction. Fast-track creates other risks to the owner but it does allow for improvements in the overall construction schedule.

One of the downsides of this project delivery model is that it does not completely eliminate the potential friction between the design professional and the construction manager at-risk. The construction manager will still insist on contract provisions that state the design is the responsibility of the design professional – no matter how much input the construction manager provides. One area where this issue is often hotly debated is code compliance. The design professional is usually still accountable – not the construction manager – for the design being code-compliant.

Another downside is that the owner foregoes establishing the price for construction in a competitive environment. The contract with the construction manager at-risk typically provides that the owner and construction manager at-risk will establish the contract price (usually as a guaranteed maximum price) when the drawings and specifications are sufficiently complete. If the construction manager proposes a price that exceeds the owner’s budget, the owner has often invested too much time and effort to switch to another construction manager, who will have a learning curve to tackle as well. The owner is often inclined to accept a higher price (after negotiating some downward adjustments) rather than retain a different construction manager.

Finally, because the construction price is typically established on less than complete drawings and specifications, the widely-used contract forms try to plug any gaps in scope definition by stating that the construction manager’s work includes items that are “reasonably inferable.” This bit of drafting sleight of hand may overcome an impasse in contract negotiation but it typically lays the seeds for a later dispute as to whether a disputed item is a true scope change.
(entitling the construction manager to a change order) or whether that item should be within the GMP.

e. Construction Manager Agent

Another version of the construction management delivery system is the construction manager as agent, also referred to as construction manager as advisor. Under this approach, the owner still separately contracts with a design professional for design services and a contractor for construction (or multiple prime contractors). In addition, the owner retains a construction manager early during the project to provide input and consultation on matters similar to what an at-risk construction manager provides – constructability, value engineering, long lead items and scheduling. Figure 5 below illustrates the relationships under a construction management agent delivery system.

![Diagram](image)

The primary advantage to this project delivery system is facilitating early input from the construction manager during the design process to identify aspects of the design that can be revised to better facilitate construction including improvements to the schedule. From the owner’s
perspective, a construction manager agent may be perceived as a better guardian of the owner’s interests than a construction manager at risk. Ultimately, a construction manager at risk functions much like a general contractor once it goes at risk for price and schedule and thus may be in a somewhat adversarial position with the owner. Hence, a construction manager agent may be more desirable for an owner to protect the owner’s interests.

One drawback to this model is that it creates more contractual relationships that could create communication and collaboration challenges and, ultimately, conflict. The construction manager agent may be perceived, especially by the general contractor, not as valued team member but a pesky gadfly that adds little if any value especially during the construction phase.

f. Multi Prime

The multi-prime delivery model is typically a variant of either or both design-bid build or construction manager agent. It is similar to design-bid-build in that the owner separately contracts with a design professional and procures construction through multiple prime contractors in each of the major trades such as earthwork, structural, mechanical, electrical, plumbing and so on. If the owner retains a third-party construction manager to manage each of these prime contractors then the delivery model is a construction manager agent model with the added complexity that the construction manager manages multiple primes similar to the manner in which a general contractor manages subcontractors – albeit without benefit of direct contractual privity and all of the tools such privity provides. Figure 6 illustrates the relationships under a multi-prime delivery system with a construction manager.
One advantage to the multi-prime delivery model is that it can save costs by eliminating the fee and general conditions costs that general contractors charge on top of the subcontractor costs under a traditional design-bid-build approach. In addition, this approach may also better facilitate fast track construction allowing for the procurement of separate bid packages before all design is complete. The major disadvantage is that there is no single entity responsible for overall cost, schedule and quality. In addition, whether through its own forces or those of a third-party construction manager, the owner bears the responsibility to coordinate among the prime contractors for both scopes of work and field operations.27

V. How Successful Are the Major Project Delivery Systems?

The answer to this question is driven by what the goals are for any given project. Broadly speaking, however, it would seem a safe assumption that for any given project schedule, cost and quality objectives in some combination are important goals even if compromises need to be made among these objectives. Various construction industry studies indicate, however, a substantial dissatisfaction with the results of construction projects in general. In one such study published back in the late 1970’s, a survey demonstrated that a significant number of projects experienced
disappointing results regardless of the project delivery system; the average or median results were generally positive but the presence of significant problems was notable.  

More recent owner studies and surveys, presumably on projects that benefited from the impacts of technological advances such as building information modeling, still demonstrate frustration with the level of project success. In some cases, these studies focus on overall problems with productivity in the construction sector, a persistent criticism of the industry. For example, in KPMG International’s Global Survey 2017, the authors noted the anomaly between the industry’s advances in particular aspects of project delivery and processes on the one hand and the construction industry’s overall performance on the other hand.

Over the past decades, owners and contractors have made considerable strides in improving the delivery of capital projects. . . But the industry’s overall performance during this period continues to tell a discouragingly different story, replete with continued inability to increase productivity, raise performance levels and reduce project failures – a record that pales against the achievements in other sectors. . . Yet half admit that, in the past 3 years, adverse project performance significantly impacted their company – rising to nearly 60 percent for contractors. Additionally, just a quarter believe the industry as a whole has reached an acceptable level of performance in delivering capital projects on time and within budget.

At least some of the difficulty achieving project success is likely attributable to poor project delivery systems or inadequate upfront evaluation of the appropriate project delivery systems. Studies published by McKinsey & Co., the Construction Users Roundtable and World Economic Forum appear to demonstrate basic and long-rooted problems with the project delivery models often used. The most widely used systems suffer from a misalignment of incentives and rewards among the project team, a lack of transparency, inadequate collaboration and ultimately inadequate results.

It is fair to ask why, in the face of empirical data accumulated over decades, has there been so little improvement in the successful delivery of construction projects. There could be any
number of reasons for this but one interesting theory was offered in a research report from the Construction Industry Institute ("CII") in 2012.\textsuperscript{31} The focus of that report was a study to rethink the capital project delivery system. In the executive summary, the authors noted how easily their research team – construction industry members and academics – agreed on the ideal project delivery system but also posed the question of why the industry was not working to create it.

To answer that question, the authors looked to research on the progression of scientific knowledge. The research focused on the theory of paradigms which states that the way people behave and think is driven by fundamental presuppositions.\textsuperscript{32} Under the theory of paradigms, scientific knowledge has developed not necessarily through a slow accretion of new knowledge but rather through a series of upheavals that fundamentally changed pre-suppositions – the sun and not the earth is the center of our galaxy for example.\textsuperscript{33} Using the theory of paradigms as a guide, the authors offered a list of the existing paradigms and what they believed the new paradigms should be to break through the dysfunction that is inhibiting overall project performance.
<table>
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<tr>
<th>Existing Paradigms</th>
<th>New Paradigms</th>
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<tbody>
<tr>
<td>• Trust is for suckers.</td>
<td>• Align the interests of the parties with the interests of the customer(s)</td>
</tr>
<tr>
<td>• Win-win is an illusion. What counts is that I win.</td>
<td>• Integrate organizationally, engaging downstream players in upstream work and vice-versa</td>
</tr>
<tr>
<td>• You can manage projects by managing contracts. Risk is managed when transferred to someone else.</td>
<td>• Place management attention on enabling successful performance, as opposed to enforcing compliance to overly detailed prescriptions how to achieve desired objectives.</td>
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<tr>
<td>• If you pay least price for each part of a project, you pay least price for the project.</td>
<td>• Resource utilization trumps project flow.</td>
</tr>
<tr>
<td>• Management by results yields the best results.</td>
<td>• Control starts with identifying a negative variance between DID and SHOULD.</td>
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<tr>
<td>• Variation in work flow is from external causes.</td>
<td>• Social factors are interesting, but don’t really matter.</td>
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VI. How Can the Selection Process Be Improved?

One way to start the shift to a new paradigm is a more thoughtful process in selecting an appropriate project delivery model which will hopefully improve the alignment of interests among the project team. Careful consideration in advance of the proper delivery method is critical; seemingly obvious but often overlooked. An owner should select the project delivery system that is most suited to both achieving project goals and reducing the risk of obstacles to attaining those goals.34

There are publications and resources available to assist in the selection of the appropriate project delivery system. CII, for instance, has published several resources that are useful tools in this regard. One such resource is the “Owner’s Tool for Project Delivery and Contract Strategy Selection – User’s Guide.”35 This guide sets forth a process for owners to identify project goals, review a host of selection factors, assign values to each of the selection factors, review the rankings based on the selection factors, select a project delivery system and decide on the preferred method of compensation. Selection factors include cost-related factors, schedule-related factors and other factors.36 “Other factors” include expectations of changes to the project, adverse local project conditions, degree of owner control desired over the project, owner’s desired level of utilization of internal resources, and the degree of design finality at the award of the construction contract.

The flow chart below depicts the process outlined by CII to arrive at an informed decision on the proper project delivery method.37
Start: Select Project

Review project objectives and profile.

Review List of Selection Factors. Choose up to six.

On Analysis Worksheet, rank the chosen Selection Factors by importance.

Assign Preference Score to Chosen Factors. (Assign 100 to the most important Factor. Others less than 100 based on their relative Importance to the first-ranked Factor.)

Sort the Results Table and Review Results.


Is Compensation Approach OK?

No → Refine Compensation Approaches.

Yes → Choose Project Delivery and Contract Strategy.
Based on the importance of the selection factors that an owner specifies, this user guide then assigns an effectiveness value to each different project delivery system. For example, if controlling cost growth is an important consideration, the guide suggests that design-bid-build with a single general contractor is likely a better option than multiple prime contractors.

Even with an analytical tool such as that discussed in the CII user guide, an owner must still ask fundamental questions about whether there are basic restrictions on the availability of certain project delivery models. For example, a public owner may be legally bound to use design-bid-build regardless of the desirability of certain goals that weigh in favor of another form of project delivery. In addition, the abilities of the owner to work with and succeed with a given project delivery model may be limited. The owner may have neither the ability, history or resources to perform the various tasks required of an owner under a particular project delivery model. If that is the case, then the project will likely suffer many setbacks.

Ultimately, thoughtful planning and careful consideration of appropriate project delivery models in advance are important steps in setting the stage for a successful project. Failure to plan is planning to fail.

4 Altman, supra Note 3 at p. 1.
5 Id.
6 See 3 DATELINE 3, May-June 1996, at 1, 9, 11 (Design-Build Institute of America).
7 Altman, supra Note 3 at p. 3.
8 Appelbaum, supra Note 2 at p. 1.

10 Id.

11 Altman, *supra*, Note 3 at p. 4.

12 The attempt to identify separate and discrete project delivery systems can yield varied results. While this paper deals with the handful of major project delivery systems, other publications have identified as many as twelve different project delivery systems. *See Owner’s Tool for Project Delivery and Contract Strategy Selection*, Construction Industry Institute - Project Delivery and Contract Strategy, Research Summary 165-1 (October 2003).


14 Appelbaum, *supra* Note 2 at p. 4.


16 Miller and Gerber, *supra* Note 13 at p. 23.


18 Diepenbrock, *supra* Note 15 at p. 4.


20 Appelbaum, *supra* Note 2 at pp. 10-11.


22 Allensworth, *et al.*, *supra* Note 1 at 86.

23 Id.

24 Id.

25 Allensworth, *et al.*, *supra* Note 1 at 87.

26 An example of a Construction Manager Agent (or Adviser) form of Agreement is the Standard Form of Agreement between Owner and Construction Manager as Adviser (AIA Document C-132-2009).

27 Appelbaum, *supra* Note 2 at p. 6.


30 These studies are discussed in the H. Aschraft, *Integrated Project Delivery*, excerpted from *Construction Law Handbook* (3rd Ed.), at 11-3 through 11-5. That excerpt is part of the program materials for this session.


32 Id. at vii.

33 Id.

34 Allensworth, *et al.*, *supra* Note 1 at p. 90.


36 Id. at Appendix 2 (Selection Factors).

37 Id. at 3.